

ENVIRONMENTAL ASSESSMENT
for the
2003 CULVERT REPLACEMENT PROJECT

North Fork Crooks Creek (1)
Crooks Creek (1)
White Creek (1)
Quartz Creek Tributary (1)
Crooks Creek Tributary (1)

EA# OR-110-03-21

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
GRANTS PASS RESOURCE AREA

June 2003

Dear Reader:

We appreciate your interest in the BLM's public land management activities. We also appreciate your taking the time to review this environmental assessment (EA). If you would like to provide us with written comments regarding this project or EA, please send them to Abbie Jossie, Field Manager, Grants Pass Resource Area at 3040 Biddle Road, Medford, OR 97504 or email them to or110mb@or.blm.gov.

If you would like to comment confidentially, please be aware that comments, including names and addresses of respondents, will be available for public review or may be held in a file available for public inspection and review unless you request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this clearly at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or officials of organizations or businesses will be made available for public inspection in their entirety.

I look forward to your continued cooperation in the management of our public lands.

Abbie Jossie
Field Manager
Grants Pass Resource Area

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
EA COVER SHEET

RESOURCE AREA: Grants Pass

FY & EA #: OR-110-03-21

ACTION/TITLE: *Culvert Replacement Project*

LOCATION: Grants Pass Resource Area, Josephine County, Oregon

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TABLE OF CONTENTS

| | |
|--|-----------|
| CHAPTER 1. PURPOSE OF AND NEED FOR ACTION | 4 |
| A. INTRODUCTION | 4 |
| B. PURPOSE OF AND NEED FOR THE PROPOSAL | 4 |
| C. PROJECT LOCATION | 5 |
| D. ISSUES RELEVANT TO THE PROJECT PROPOSAL | 5 |
| CHAPTER 2. PROPOSED ACTION | 6 |
| A. ALTERNATIVE 1: NO ACTION | 6 |
| B. ALTERNATIVE 2: PROPOSED ACTION | 6 |
| D. PROJECT DESIGN FEATURES | 8 |
| 1. Fisheries | 9 |
| 2. Soil and Water | 10 |
| 3. Wildlife | 10 |
| 4. Fire Suppression | 10 |
| 5. Port-Orford Cedar (POC) | 10 |
| CHAPTER 3. ENVIRONMENTAL CONSEQUENCES | 11 |
| A. INTRODUCTION | 11 |
| B. BENEFICIAL AND ADVERSE EFFECTS OF THE ALTERNATIVES | 11 |
| 1. Fisheries | 11 |
| 2. Soil and Water | 13 |
| 3. Botany | 14 |
| 4. Wildlife | 15 |
| 5. Port-Orford Cedar | 16 |
| 6. Recreation, Cultural Resources and Visual Resources | 17 |
| CHAPTER 4. AGENCIES AND PERSONS CONSULTED | 18 |
| A. PUBLIC INVOLVEMENT | 18 |
| B. AVAILABILITY OF DOCUMENT AND COMMENT PROCEDURES | 18 |
| APPENDIX A. MAPS | 19 |
| 2003 CULVERT REPLACEMENT VICINITY MAP | 19 |
| 2003 CULVERT REPLACEMENT PROJECT LOCATION – MAP 1 | 20 |
| 2003 CULVERT REPLACEMENT PROJECT LOCATION – MAP 2 | 21 |

LIST OF TABLES

| | |
|---|----|
| TABLE 1. PROPOSED ROAD CULVERT REPLACEMENTS | 7 |
| TABLE 2. FISH SPECIES AND HABITAT BENEFITS FOR JUVENILES AND ADULTS | 12 |

Chapter 1. Purpose of and Need for Action

A. Introduction

This environmental assessment (EA) will assist in the decision-making process by assessing the environmental and human effects resulting from implementing the proposed project or alternatives. The EA will also assist in determining if an environmental impact statement (EIS) needs to be prepared or if a finding of no significant impact (FONSI) is appropriate.

This EA tiers to the following documents:

1. *Final EIS and Record of Decision for the Medford District Resource Management Plan (RMP)* (June 1995);
2. *Final Supplemental EIS on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl* (February 1994);
3. *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* and its attachment A entitled *Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (NFP) (April 13, 1994).
4. *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (January 2001).

B. Purpose of and Need for the Proposal

Many culverts designed and installed in the past did not adequately consider fish migration; they often impeded migration of coho salmon and steelhead trout. Historically BLM culvert design standards were targeted to accommodate water levels of a 50-year flood. The Medford District RMP (p. 87) directs upgrading existing road culverts that pose a substantial risk to riparian conditions. These culverts must accommodate at least a 100-year flood and provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams (NFP p. C-33).

Unimpaired fish passage is needed for salmonids to complete life history requirements. In watersheds where summer stream temperatures are elevated above optimal levels for salmonids, as they are in the project watersheds, it is especially important for juvenile salmonids to have unimpaired access to small tributaries that provide refuge from warmer mainstem waters.

The purpose of this project is to replace and upgrade five culverts that were prioritized for replacement in the following areas: North Fork Crooks Creek, Crooks Creek, White Creek, Quartz Creek

Tributary, and a Crooks Creek Tributary.

C. Project Location

See Appendix A, maps.

D. Issues Relevant to the Project Proposal

Issues identified by the BLM interdisciplinary planning team as pertinent to the project include:

- Roads are needed for BLM administrative and public access and are important for fire access and as a fire breaks. Transportation Management Objectives (TMOs) for all project area roads are to keep them open for administrative and public access. Each of these roads is encumbered by at least one reciprocal road use agreement.
- The existing culverts inhibit passage for anadromous and resident salmonids.
- Existing culverts were designed to accommodate a 50-year flood event and currently pose a risk to road crossings, riparian habitat, and human safety at very high stream flows.
- Coho salmon are an ESA federally listed species in the Rogue and Illinois River Basins.

Chapter 2. Proposed Action

A. Alternative 1: No Action

The no action alternative is defined as not implementing the proposed action. The no action alternative also serves as a baseline for evaluating the environmental effects of the action alternative. Inclusion of this alternative is done without regard to whether or not it is consistent with the Medford District RMP.

The no action alternative is not static: implied is a continuation of current environmental conditions and trends including vegetative succession, habitat changes, and road densities.

B. Alternative 2: Proposed Action

The proposed action is to replace the five culverts listed in Table 1, Proposed Road Culvert Replacements. Culvert replacement would include removal of the existing culvert and the installation of an open bottomed (natural stream bed) culvert. The new culverts would have concrete footings with preformed steel or concrete spans. Sites for footings would be excavated on each side of the creek and concrete footings poured in place. Sites would be de-watered except under the following conditions: 1) stream channels are seasonally dry at the time of construction; 2) a temporary vehicle bypass road is constructed (Quartz Creek site) 3) footings can be placed before removing the old culvert. De-watering may consist of digging a temporary channel or, if fish aren't present, pumping water around the site.

At the Quartz Creek Tributary site, a temporary bypass road (14'x50') would be constructed, requiring removal of a strip of vegetation (20'x50' or approximately 0.02 acres in size) upstream of the existing road crossing. A temporary culvert would be installed and fill material would be washed rock, greatly reducing the amount of residual fines in the channel following rehabilitation of the temporary road location. After project implementation is complete, the temporary road would be decompacted, recontoured, planted with native riparian species, and mulched.

Typically, excavators would be used to remove culverts, excavate footings, install temporary crossings, and excavate and place fill material over the new culvert. Heavy equipment would work outside the channel as much as possible; it may at times be in the stream channel, but to the extent practicable, when the channel is either naturally dry or de-watered. In-channel work when water is flowing would be in accordance with Oregon Division of State Lands and U.S. Army Corps of Engineers Removal-Fill Permit requirements. Activities would strive to maintain preconstruction downstream flow conditions.

Vegetation growing in the fill surrounding the existing culverts would be removed. Furthermore, trees and vegetation at the toe of the fill would be removed to allow construction of new footings. Outside the road prism, vegetation would be reestablished by planting native riparian species.

To avoid bank scour at culvert inlets and outlets, banks may be armored with rocks. The largest rocks would be at the toe, and smallest, at the top of the slope. In addition, toe slope rocks would also be graded with the largest rocks being placed nearest the culvert.

Construction would require all project site roads to be closed to the public for up to 3 months, potentially concurrently, between June 15 and September 15 except at the Quartz Creek Tributary site which would have a bypass road.

| Table 1. Proposed Road Culvert Replacements | | | | | |
|--|--------------------------------------|--|--|---|---|
| Culvert Site (5th Field Watershed) | BLM Road # (Milepost) | Township, Range and Section | Current Stream Crossing Condition | Current Fish Passage Condition | Proposed Action |
| North Fork Crooks Creek (Deer Creek) | 37-7-35.2 (0.7) | 37S-7W Sec 35 SE ¼ | Undersized culvert blocks juvenile and adult cutthroat; impedes steelhead and coho. | 6.0' drop to pool and inadequate pool depth below culvert. | Replace existing 6x4x46' culvert with open bottom structure to meet 100 year flood event estimated at 325 cfs (cubic feet per second). |
| Crooks Creek (Deer Creek) | 37-7-35.2 (0.5) | 37S-7W Sec 35 SE ¼ | Undersized culvert impedes juvenile and adult salmonids. | 1.8' drop to pool and inadequate pool depth below culvert. | Replace existing 5x7x52' culvert with open/natural bottom pipe arch to meet 100 year flood event estimated at 455 cfs. |
| White Creek (Deer Creek) | 38-6-18 (1.5) | 38S-7W Sec 25 NW ¼ | Undersized culvert blocks juvenile salmonids and adult cutthroat, and impedes adult steelhead and coho. | 4.0' drop to pool, inadequate pool depth below culvert, and possible velocity barrier. | Replace existing 10x8x50' culvert with open/natural bottom pipe arch to meet 100 year flood event estimated at 550 cfs. |
| Quartz Creek Tributary (Jumpoff Joe) | 35-6-8 (2.3) | 34S-7W Sec 25 SE ¼ | Undersized culvert impedes juvenile and adult salmonids. | 1.0' drop to pool and inadequate pool depth below culvert. | Replace existing 4.5x5x34' culvert with open/natural bottom pipe arch to meet 100 year flood event estimated at 415 cfs. Bypass road would be required (14x50'). |
| Crooks Creek Tributary (Deer Creek) | 38-7-3 (0.1) | 38S-7W Sec 3 NE ¼ | Undersized culvert blocks juvenile salmonids and adult cutthroat, and impedes adult steelhead and coho. | 1.0' drop to pool and possible velocity barrier. Blocks upstream juvenile salmonid movement and impedes upstream adult salmonid movement. | Replace existing 6x6x52' culvert with open/natural bottom pipe arch to meet 100 year flood event estimated at 340 cfs. |

D. Project Design Features

Project Design Features (PDFs) help reduce anticipated adverse environmental impacts due to implementation of the proposal. The following PDFs would be incorporated at each site.

1. Fisheries

The following PDFs are based on the terms and conditions and reasonable and prudent measures identified in the National Marine Fisheries Service (NMFS) August 8, 2001 programmatic biological opinion:

A fisheries biologist would participate in the design and supervision of the in-stream work.

In-stream work would occur between June 15 and September 15, unless a waiver is granted by Oregon Department of Fish and Wildlife due to dry conditions.

All disturbed areas would be rehabilitated and stabilized by seeding and planting with native seed mixes or plants including native conifers, deciduous trees and shrubs and native grasses.

Access into and through the riparian areas would be restricted to the existing road prism where possible. Access other than this would be minimized and subject to approval by the fisheries biologist prior to access development or use.

Heavy equipment would be clean and free of leaks before any use within stream channels.

Spill containment materials would be kept on site at all times.

Equipment refueling would be not occur within 150' of the stream.

Heavy equipment would be kept out of the stream channel to the greatest extent possible. The new culverts would be in place before heavy equipment moves beyond the stream (e.g., the excavator would reach across the stream as needed).

In addition, the following PDFs would also be implemented:

Sediment influx into the stream would be minimized through sediment control measures such as: flow bypass around the work site, sediment traps, work site dewatering by pumping water through overland vegetation or use of appropriate filters/filter fabric.

To minimize fish mortality in the work area, fish would be netted and removed from isolated pools at the work site prior to dewatering the work site.

Rocks and boulders would be placed within the crossing to simulate the natural stream bottom found upstream and downstream of the new culvert.

Filter cloth would be placed below any sediment traps created at each site. Where sediment ponds are used, sediment and turbid water would be pumped from the settling pond to a vegetated site outside of the channel.

If fish are present, fish passage would be provided through channel rerouting or temporary culvert placement to the degree that passage was possible prior to project implementation.

2. Soil and Water

When a culvert is removed and when placing rip rap, filter cloth would be placed in the stream to remove sediment.

Fill banks would be seeded with native grasses, forbs and mulches upon completion of work.

To provide future shade, erosion control and bank stability, project sites would be planted with suitable native woody vegetation (conifers, deciduous trees and shrubs).

3. Wildlife

Retain the natural rock barrier on the left (south) side of channel below the North Fork Crooks Creek site.

4. Fire Suppression

Oregon Department of Forestry would be notified of road closures.

Josephine County officials as well as local landowners would be notified prior to road closures. All roads would be signed and notices placed in newspapers at least two weeks prior to closure.

5. Port-Orford Cedar (POC)

POC is not currently found within the vicinity of any of the projects sites.

Chapter 3. Environmental Consequences

A. Introduction

Only substantive site specific environmental changes that would result from implementing the proposed action are discussed in this chapter. If an ecological component is not discussed, it should be assumed that the resource specialists have considered effects to that component and found the proposed action would have minimal or no effects. Similarly, unless addressed specifically, the following were found not to be affected by the proposed action: air quality; areas of critical environmental concern (ACEC); cultural or historical resources; Native American religious sites; prime or unique farmlands; flood plains; wild and scenic rivers; and wilderness.

B. Beneficial and Adverse Effects of the Alternatives

1. Fisheries

a. Affected Environment

All project site streams are perennial fish bearing streams and contain coho salmon, steelhead and resident cutthroat trout. Southern Oregon/Northern California coho salmon are federally listed as threatened under the Endangered Species Act (ESA) and the Pacific lamprey is a Bureau tracking species in Oregon (lamprey are assumed to occur wherever steelhead are found and are afforded the same habitat requirements). Klamath Mountain Province steelhead were determined to be unwarranted for listing in March 2001 by the National Marine Fisheries Service.

b. Environmental Effects

1) Alternative 1: No Action

The no action alternative would result in the continued passage impediment to spawning adults and migrating juveniles at all project sites. Hindering access to spawning and rearing habitat contributes to suppressed anadromous and resident fish production and survival.

2) Alternative 2: Proposed Action

Available fish habitat would increase, improving fish production and survival. Replacing all five culverts would provide upstream passage for all juvenile and adult salmonid species, making the upstream habitat areas shown below in Table 2 fully accessible to salmonids.

| Table 2. Fish Species and Habitat Benefits for Juveniles and Adults | | | | | | |
|--|--------------------|--|--------------------|--|------------------|--|
| Culvert Site | Coho | Upstream Habitat Area (mi.) | Steelhead | Upstream Habitat Area (mi.) | Cutthroat | Upstream Habitat Area (mi.) |
| Crooks Creek | Present | 0.21 | Present | 0.21 | Present | 0.72 |
| North Fork Crooks Creek | Present | 0.71 | Present | 0.71 | Present | 1.11 |
| White Creek | Present | 0.32 | Present | 0.32 | Present | 1.47 |
| Quartz Creek Tributary | Habitat Present | 0.28 | Habitat Present | 0.28 | Present | 1.86 |
| Crooks Creek Tributary | Present | 0.5 | Present | 0.5 | Present | 1.1 |

Spawning fish would have unimpaired passage to habitat located upstream from the culverts. Juvenile anadromous fish and resident salmonids would have unimpaired access to migrate up and downstream seeking cold water refuge during summer months. Salmonid production and survival should improve in these drainages. When linked with other riparian habitat restorations in the watersheds, these projects can have a multiplied long term beneficial effect.

Any sediment delivery to streams associated with the proposed action would be highly localized, unmeasurable, and of short duration. There would be no adverse impacts at the watershed level (5th field). Furthermore, PDFs such as temporary erosion and sediment control measures and bank stabilization would minimize short term sediment impacts. This localized, short term sediment increase is not expected to substantially affect salmonid survival or production.

The loss of shading vegetation would cause a short term reduction of pool quality at the culvert. However, planting native shade species would likely mitigate the loss of cover within 8-10 years. The long term beneficial effects would be an increase in salmonid survival and production. No long term or cumulative adverse effects (direct or indirect) are anticipated at either the project level (7th field scale) or the watershed level (5th field scale).

The culvert replacements are likely to adversely affect the federally listed threatened coho salmon in the short term. The proposed actions are, however, consistent with the terms and conditions of the National Marine Fisheries Service's (NMFS) August 8, 2001 Biological Opinion for the Programmatic Actions regarding coho salmon Endangered Species Act consultation. No additional consultation is needed.

Channel excavation at all sites is likely to adversely impact coho (but not chinook) Essential Fish Habitat (EFH). Sediment from the bypass road construction at the Quartz Creek Tributary site could also result in stream turbidity. However, this short term, slight influx of sediment is not likely to degrade the EFH. Furthermore, the PDFs adequately mitigate or eliminate the potential adverse effects to EFH.

The proposed culvert replacement work is consistent with and would promote Aquatic Conservation Strategy (ACS) objectives 2, 3, 4, 5, 6 and 9 in the following ways (RMP p. 22):

Fish passage to areas critical for fulfilling anadromous fisheries life history requirements (especially upstream spawning grounds) would be improved.

Bottomless culverts would reestablish a natural gradient to the streambed.

Areas of colder water would be available to juvenile salmonids during summer months.

Culverts which currently retard sediment transport would be replaced, facilitating the development of a more natural sediment regime by allowing water and sediment to move through the system more readily.

Bottomless culverts would restore flows across a natural streambed and retain patterns of nutrient and woody material movement through the system.

Coho salmon, steelhead and cutthroat trout upstream habitat use would increase.

2. Soil and Water

a. Affected Environment

The sites are located in the 5th field watersheds of Deer Creek and Jumpoff Joe Creek. Precipitation (rainfall) at all the sites varies substantially. All streams are 303(d) listed for water quality limitations and for high summer temperatures (seven day average maximum temperatures are above 64 °F).

Soils at the Quartz Creek tributary site are Vannoy and Voorhies. These well drained soils have silt loam and very gravelly loam surface layers over clay loam and gravelly clay loam (respectively) layers. Sand and finer grained materials comprise 15-90% of these soils.

Soils at the White Creek site are Cornutt and Dubakella. These well drained soils have cobbly clay loam and extremely cobbly clay loam surface layers over clay and very cobbly clay (respectively) layers. Sand and finer grained materials comprise 15-50% of these soils.

Soils at the three Crooks Creek (including the tributary) sites are Abegg gravelly loam. This well drained soil has a gravelly loam surface layer over a reddish gravelly clay loam layer. Sand and finer grained materials make up 35-75% of the soil.

b. Environmental Effects

1) Alternative 1: No Action

At all five sites, the stream sediment regime and bedload carrying capacity would remain altered (from a natural, no road crossing situation) by the existing culverts. This is because each culvert's slope and elevation do not match the natural stream grade. Furthermore, because high flows exceed the culverts' capacities, excess flow finds new routes, eroding soils and picking up much more sediment than would naturally occur in these systems. This is evidenced in the case of the White Creek culvert where the channel has become rerouted downstream of the culvert.

2) Alternative 2: Proposed Action

At all five sites, high stream flows, sediment regime, and bedload carrying capacity would be in a more stabilized condition (over the short and long terms) due to increased culvert capacity and natural stream bed culvert bottoms instead of ribbed culvert bottoms.

Small amounts of fine sediment downstream from the work sites may escape the filter fabric sediment traps. However, this would occur only during construction and would be a minimal (likely unmeasurable) localized effect.

Vegetation removed during project implementation would slightly reduce stream shade resulting in an inconsequential, short term, localized water temperature increase. However, sites would be replanted with appropriate native species to accelerate the development of stream shading vegetation.

3. Botany

a. Affected Environment

The project areas were surveyed for special status and Survey and Manage plants but none were found. No noxious weeds were found. Big leaf maple, deerbrush, other shrubs, exotic grasses and forbs inhabit the sites. The habitat found at these stream crossings consists of a typical array of riparian vegetation dominated by big leaf maple and alder (both white and red alder) with Douglas-fir either directly in the overstory or upslope. Deerbrush, other shrubs, exotic grasses and forbs also inhabit the sites.

Non-vascular species are typical of those usually occurring on alders and big leaf maple. Also, in areas downstream of the culverts where plunging water has created very moist conditions, a heavy bryophyte

layer prevails in the spray zones.

b. Environmental Effects

1) Alternative 1: No Action

Riparian vegetation would not be impacted by current management or activities. Non-native species that currently inhabit portions of the road prism would be unlikely to expand.

2) Alternative 2: Proposed Action

No special status or Survey and Manage vascular or non-vascular species were located during surveys. Therefore, no effects are expected. Non-native species are likely to expand into newly disturbed areas, even given active replanting of the site with native species and mulching. Active, annual eradication of new populations may become necessary.

As more culverts are upgraded throughout the region, noxious weed invasions would continue, given that roads provide a conduit of dispersal for such species. However, concerted weed eradication efforts can help mitigate this effect. Noxious weeds would be treated according to the Medford District Integrated Weed Management Plan (PA-OR110-98-14) and monitored annually to the extent that funding and resources are available.

4. Wildlife

a. Affected Environment

Two species of amphibians listed by the state of Oregon as “sensitive” are located in the streams associated with the culvert replacement sites. These species, the foothill yellow-legged frog (*Rana boylei*) and the tailed frog (*Ascaphus truei*) are adversely affected by high water temperatures and excessive sedimentation; they require clean, silt free, gravelly substrate.

There are no known species listed under the Endangered Species Act at any of the culvert sites.

b. Environmental Effects

1) Alternative 1: No Action

The downstream riparian areas would continue to be at risk for degradation following a 100-year flood event, although it is impossible to gauge if and when such an event would take place and the actual effects. However, it is likely that during a 100-year flood event, the culverts and road systems could be overwhelmed, leading to failure of the system and a potential input of 20-50 yards of material into local streams. If this occurred, there would be a loss of habitat and individuals. This effect could extend downstream for as much as a ¼ mile as the sediment filled interstitial spaces, temporarily degrading habitat and killing individuals.

2) Alternative 2: Proposed Action

Installing new culverts may have a negative short-term impact on the habitat for the two state listed frog species. However, PDFs that minimize sedimentation (e.g., filter fabric, seasonal restrictions) would minimize these impacts. A long term project benefit is restoration of the stream connection which allows species to easily move through the system.

Cumulatively, continued replacement of culverts with updated “fish and amphibian friendly” designs would aid in widespread dispersal and improved conditions for amphibians and other riparian species.

Below the North Fork Crooks Creek culvert site, there is a natural barrier (rock outcrop) and associated waterfall. The PDF that specifies protection of this feature would ensure retention of this unique habitat for amphibians, invertebrates and other animals.

5. Port-Orford Cedar

a. Affected Environment

Port-Orford cedar (POC) is not currently found within the vicinity of the project sites.

b. Environmental Effects

1) No Action Alternative

The no action alternative would not impact Port-Orford cedar, the root disease or the potential spread of the root disease.

2) Alternative 2: Proposed action

The proposed project would be unlikely to increase the potential for POC root disease introduction through general public traffic and use of the road.

6. Recreation, Cultural Resources and Visual Resources

a. Affected Environment

The roads are used for local access by landowners and forest users. The project sites are in Visual Resource Management (VRM) Classes 3 and 4. There are no known cultural sites at the project sites.

b. Environmental Effects

1) No Action Alternative

In the no action alternative, reduced access to a wide variety of dispersed recreation opportunities as well as access to private land or residences could occur if a high water event washed out the existing undersized culverts at the various project sites. Furthermore, off highway vehicle use opportunities could be reduced if the culvert at the Quartz Creek Tributary location washed out. The visual landscape would remain unchanged.

2) Alternative 2: Proposed Action

Local / Residential Access: Some inconvenience to local residents, land owners, and recreation users may occur due to temporary road closures during project implementation. There are no residences above the Crooks Creek sites, so only landowners and casual road users would be impacted. There is one residence located above the Crooks Creek Tributary site that would need an alternate access road. Access to the White Creek area is available through other routes. Approximately three residences are located above the Quartz Creek site and would be impacted. However, a temporary bypass route would minimize delays.

VRM: The White Creek, Quartz Creek, and Crooks Creek Tributary culverts are in a VRM Class 3 area. The proposed action would be consistent with the objectives for VRM Class 3 lands. The North Fork of Crooks Creek and Crooks Creek culverts are in VRM Class 4. The proposed action would be consistent with the objectives for VRM Class 4.

Chapter 4. Agencies and Persons Consulted

A. Public Involvement

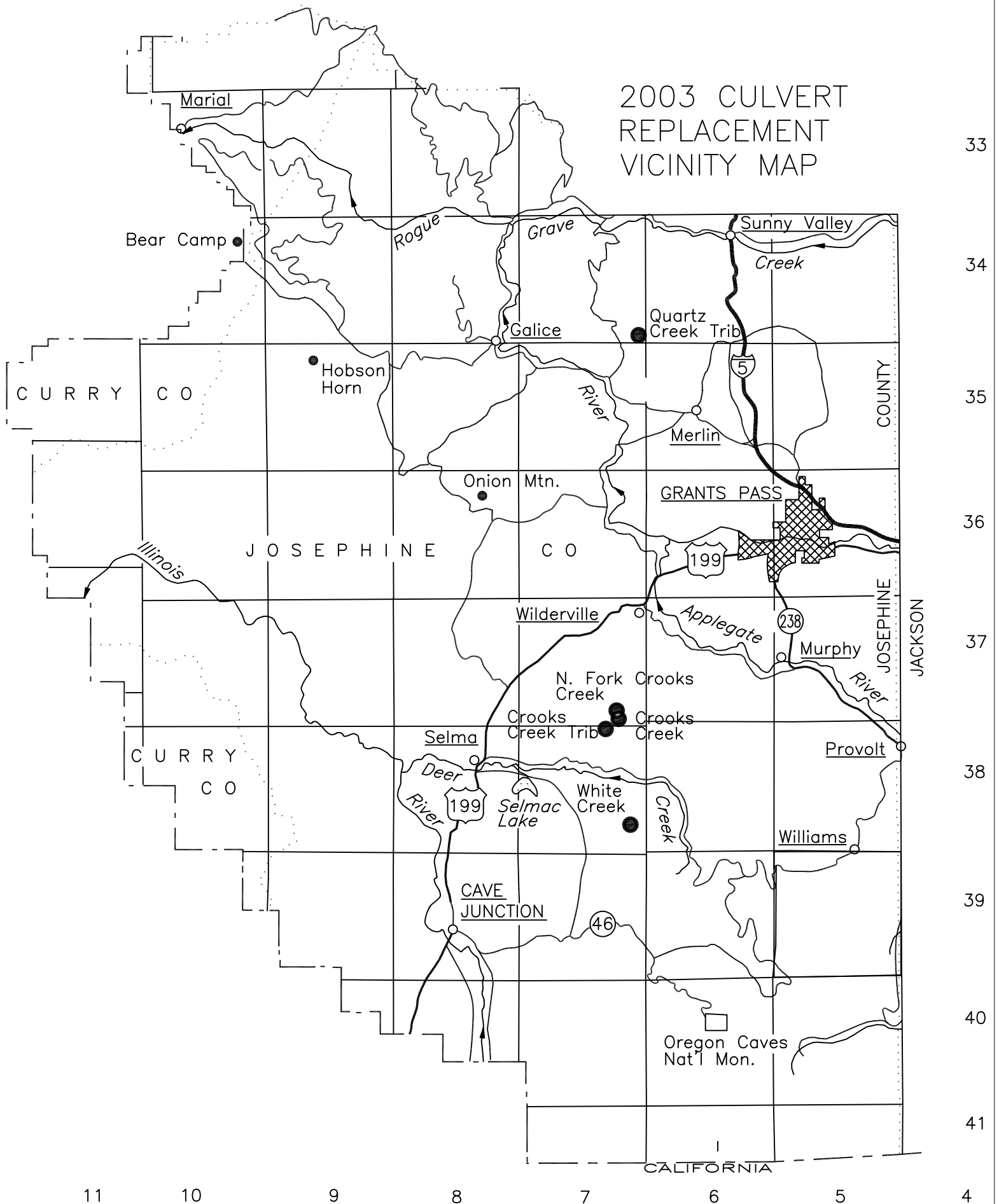
Discussions regarding this project were conducted with the Josephine County Department of Forestry and the US Fish and Wildlife Service.

B. Availability of Document and Comment Procedures

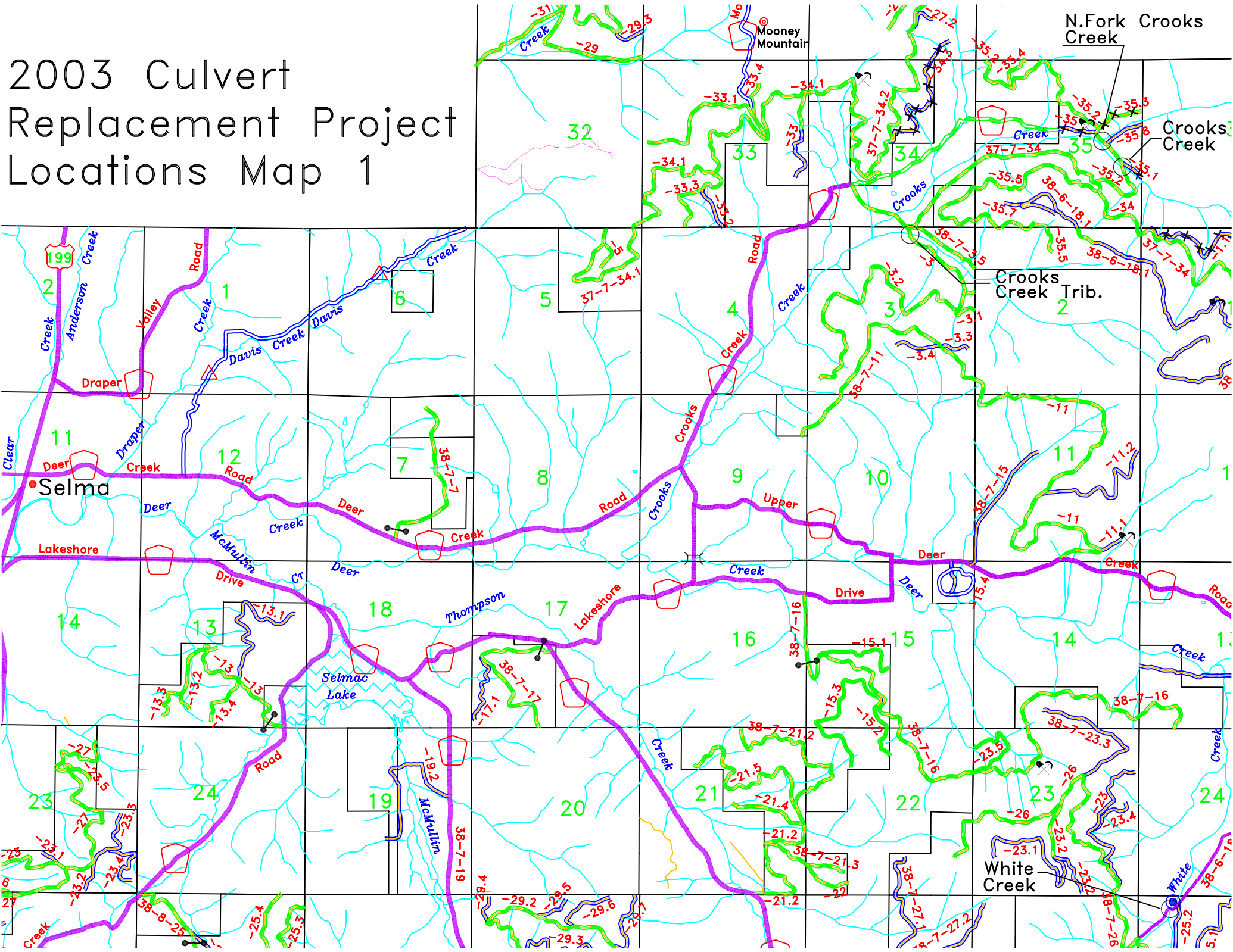
Copies of the EA will be available for public review in the BLM Medford District Office as well as on the Medford District's web site (www.or.blm.gov/Medford) under planning documents / environmental assessments. A formal 15 day public comment period will be held following an announcement in the Grants Pass Daily Courier.

Written comments should be addressed to Abbie Jossie, Field Manager, Grants Pass Resource Area, at 3040 Biddle Road, Medford, OR 97504. E-mailed comments may be sent to or110mb@or.blm.gov.

2003 CULVERT REPLACEMENT VICINITY MAP



2003 Culvert Replacement Project Locations Map 1



2003 Culvert Replacement Project Locations Map 2

